DOCUMENT RESUME

ED 086 398 RC 007 544

TITLE	A Guide for Teaching in and from an Urban School Environment, 1973.
INSTITUTION	State Univ. of New York, Plattsburgh. Coll. at Plattsburgh.
PUB DATE	73
NOTE	75p.; Graduate reports from Education 515, "Outdoor Education Program Planning for the Classroom Teacher"
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Art; Classroom Materials; *Curriculum Development; Graduate Students; Health; Language Arts; Mathematics; Music; Natural Resources; *Outdoor Education; *Resource Materials; Sensory Experience; Social Studies; *Student Developed Materials; *Urban Environment

ABSTRACT

The resource materials represent the cooperative efforts of graduate students enrolled in a 2-week field learning class. The specific objective of the reports was to consider the ways urban resources can be used in outdoor education teaching in and from a "city" environment. The individual reports are: Athletic Field; Community Signs; Curbs and Gutters; Fences; Highway and Traffic; Parking Lot; Plantings; Pond; School Buildings; School Grounds; Sidewalks; Streams; Tree; Vacant Lot; Window (In and Out); and Window Box. Each report gives activities for teaching areas, such as language arts, social studies, mathematics, science, music, health, and physical education. (KM)

ED 086398

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

RECEIVED DEC 20 1973 NMSU E.R.I.C.

A Guide For Teaching In And From An Urban School Environment

Graduate Student Reports from:
"Outdoor Education Program Planning for the Classroom Teacher"

Education 515
State University of New York
College of Arts and Science
Plattsburgh, New York 12901

Course Professor:
Dr. Ernest M. Coons
Coordinator of Outdoor Education

1973

FILMED FROM BEST AVAILABLE COPY

The following resource materials represent the cooperative efforts of graduate students enrolled in a two-week field learning class. This report is intended to provide an additional dimension to the reports of the 1972 class which dealt with Outdoor Education Activities for the School Curriculum. The specific objective of the reports was to consider the many ways urban resources can be used in teaching in and from a "city" environment.

Outdoor education materials have not in the past essentially provided a concentrated resource for the teacher who teaches in a city school surrounded by man-made environments or heavily influenced by man's traffic. It is the hope of this class that the reader will realize the many unique learning opportunities to influence the learning lives of children by using the outdoor education method in urban settings.

TABLE OF CONTENTS

Athletic Field 1

Community Signs 4

Curbs and Gutters 7

Fences 10

Highway and Traffic 12

Parking Lot 20

Plantings 22

Pond 29

School Buildings 33

School Grounds 37

Sidewalks 41

Streams 45

Tree 53

Vacant Lot 57

Window (In and Out) 62

Window Box 70

OUTDOOR EDUCATION USING THE ATHLETIC FIELD

BY:
John Williams

The following list of activities for the athletic field is only a small sample of the possibilities for the classroom teacher. It is my hope that it will trigger your imagination out of doors for you as well as your students.

Arts and Crafts
1. All activities can be done at least partly out of doors.
   a) casts and prints
   b) rubbings
   c) photography
   d) rocks, leaves and stems (paint, or collage)
   e) make a box with your fingers (draw or find beauty)
   f) colors
   g) feel leaves etc. for texture
   h) what do cloud formations look like?

Health
1. health habits
   a) rest rooms
   b) concession stands
   c) insects and bacteria and what do they carry?
   d) crowds, colds, flu etc.
2. athletic activities
   a) rules of safety
   b) training rules
   c) what does the football team eat?
   d) smoking

Industrial Arts and Homemaking
1. outdoor cooking and camperaft
2. menus for the athletic teams
3. building
   a) rockets
   b) bird feeder
   c) weather station
   d) airplanes
   e) carving
   f) blueprint and construct an athletic field to scale

Language Arts
1. poetry and creative writing
   a) discribe the feel of a leaf
   b) discribe what you hear
   c) take a barefoot walk and discribe
   d) discribe clouds and how you feel
2. spelling
   a) write down what you hear, see, or touch
   b) learn to use plant encyclopedies etc.
3. story telling
   a) who can tell the tallest tale?

Science
1. study of plants and animals (insect)
    a) food chain
    b) population in a coat hanger
    c) web of life game
    d) 100 in. hike
    e) terrariums
    f) soil study
    g) temperature effect
2. weather
    a) clouds
    b) temperature
    c) weather stations
    d) hot air balloons
3. airfoils
    a) frisbies
    b) gliders
    c) rockets
4. pollution
    a) smells
    b) air currents
5. sounds
    a) sound meter and charts
    b) identify
6. seasons, stars and moon study
7. melt snow

Social Studies
1. set up mini olympics using straws for javalens, paper plates for discuss etc. (trace history)
2. map making
    a) compass readings like the early explorers
    b) study the infulence of astronomy
    c) organization and how governments are formed
3. Indian ceremonial
    a) what is made by man, nature etc.?
    b) what was this land used for 75 yrs. ago?
    c) what is the land good for now ? in the future?
4. ecology
    a) discuss pollution, how has it changed government etc?
5. food chains
    a) animal migration
    b) explantion of cities etc.
6. set up gangs and territories
    a) relate to war
    b) relate to food and territory
    c) relate to cold war
    d) peace etc.

Math
1. measuring
    a) acre
    b) heights of grandstand, goal posts, etc.
    c) sizing of field

d) pacing
e) estimating crowds etc.
f) use of stop watch
g) build rockets, time, read technique charts
h) temperature reading and averaging
i) rainfall averaging
j) time, space, and plant growth

Music
1. sounds
a) traffic, sirens, voices, and crowds
b) background music

2. singing and dancing
a) campfire songs
b) each pick a sound and imitate then compose
c) watch the band practice
d) march

COMMUNITY SIGNS

BY:
William Case
William Meyer

When one considers "signs" in an intercity situation, his scope is practically endless. He can consider such signs as animal prints and tire marks on pavement, bird droppings on buildings, a leaf or other debris on a sidewalk or in a gutter, etc.

Signs considered for this exercise will be limited to formal metal, glass, plastic and or wood construction for the following specific classifications:

1. Traffic
2. Commercial
3. Instructional
4. Religions and Social
5. Political

With our subject defined, one can further organize the paper in several basic fashions:

1. Degree of student sophiscication (k-12)
2. Subject matter activity classifications
3. Combination of the above
4. Haphazard listing of activities
5. Subject matter activity by sign classification

Because of the varied and interrelated nature of activities with respect to signs, it has been decided that since many activities over lap subject areas. A general activity category must include all activities which over lap subject areas this to be followed by activities primarly confined to one subject area.

Since one will undoubtedly find several sign classifications within view at any given time. All five classification of signs shall be considered as one with respect to all the following activities.

A. <u>General Interdisciplinary Activities</u>
1. Classify as to type
2. Reason, analysis, and justification for sign message
3. Researcher discusses origin of signs in general and each specfic catagory
4. Discuss safety in sign orientated environment
5. Discuss placement of signs with respect to height and location-commercial, religious, etc.
6. Discuss brevity of sign words and messages

B. Language Arts
1. Dictionary skills
2. Sign word analysis: origin, vowels, syllables
3. Composition: i.e. I am the stop sign at (location) I see
4. Characteristics of sign words
5. Sign punctuation
6. Sentence structure
7. Spelling
8. Primary grades-examples of letter and numerals
9. Effect of neatness vs. sloppiness

C. Social Studies
1. Map a city block-locate signs-discuss patterns formed.
2. Visit sign manufacturer. Discuss employment, raw materials, transportation, competition, etc.
3. Location and quantity in given area of certain sign type (religious). Reason for specific location. When erected?
4. Construct grid map in classroom or on playground. Accurately locate signs from given area. Plot.
5. Signs to distant places-Springboard discussion for change in transportation in modes, times and reasons for existance and visiting of places named on signs.
6. Discuss economic consequences of replacement due to illegal acts vs natural deterioration.
7. Discuss source of materials used in signs, metal wood, paint,
8. Appreciation of economic and social value-less vandalism.

D. Mathmatics
1. Geometry of sign shapes-significance of shape
2. Estimation of height from ground level and heights
3. Cost of erection, maintainence, and replacement
4. Measure height and slope
5. Shadows-almost unlimited possibilities

E. Science
1. Identification of specific metals and wood
2. Discuss fastenings on signs
3. Affect of natural conditions (sun, rain, heat, etc.) on sign
4. Ways to retard deterioration
5. Discussion-why some metals rust and other do not
6. Discussion-steps in painting (wood or metal)
7. Test strength of woods and metals
8. Discussion of sign metals and relation to other products
9. Effect of metal in compass bearing
10. Micro-climate of signs in varying locations and same locations during different times during day.
11. Analyze accumulated dirt and debris on sign to discover source and determine effect on deterioration.

F. Art
1. Make rubbings of various park signs to discover texture and raised or indented letters.

2. Size and shape of lettering
3. Color contrast (background)
4. Effect of lighted vs non-lighted signs
5. Method or substance to stop glare
6. Significance of design, shape of sign
7. Asthetic replacement of signs
8. Sketching sign shapes

One should in no means consider this list of activities complete. Where ever discussion is indicated, older students may do group or individual research.

This brief paper indicates outdoor education has near possibilities for each classroom teacher wherever his classroom exists, he it in the intercity or the wilds of the Adirondacks.

Regardless of the activity each activity should be well planned (with children), executed consciously, and properly evaluated.

THE EXPLORATION OF CURBS AND GUTTERS

By:
Jean Wilbur
Diane Prinkaus

To many people it would never occur to them that outdoor education could be carried on no matter what the setting. To imply to them that outdoor education could be carried on in an urban setting might seem to be a bit far fetched. But in reality, there is as much to explore in the city as there is in a suburban area. Life and all of it's activities goes on all around us. It is only for the conscientious observer to find it, learn from it and to teach all facts of life from it.

The topic of curbs and gutters may be to some people a very limited source of investigation. You will note that in the following pages all areas of curriculum have been covered: science, language arts, math, social studies, art and music.

The challenge is limited only be the observer. When curbs and gutters are explored and things discovered, students will begin to be opened to many avenues of education. The students will learn to make observations, make charts and graphs, learn to carry out investigations. Last, but not least, they learn to appreciate and love those things around them.

This outline is by no means complete, it just suggests what is possible when you walk out into the out of doors and take in all that is available to you.

Math

1. Measure the height of the curb
2. How much higher is the curb than the gutter?
3. What is the shape of the gutter and why is it that shape?
4. Learn how to make cement
5. Make some cement using the ratio of ingredients you have learned
6. What is the cost of concrete per yard?
7. What is the cost of concrete per section of the curb?
8. How long is each section of the curb?
9. Does the gutter slope? What is the percentage of slope?
10. Make a model of a curb and gutter using your concrete

Language Arts

1. Write about how you would feel if you were floating down a gutter.
2. Dramatize someone crossing a flooded gutter.
3. Observe people parking by the curb. Describe their reactions.
4. Listen to the sounds at the curb, record them and bring them back to the classroom.
5. Write letters asking to visit places to discuss curb and gutter construction.

Language Arts (continued)

6. Write follow up letters to thank people for the visits.
7. Write a poem or short story describing raindrops falling down into a gutter.
8. Write similies or other figures of speech about a curb or a gutter.
9. Using senses, touch, smell, sight write a descriptive paragraph about a curb or gutter.
10. Listen to the sounds that you hear at a curb and then write about them.

Social Studies

1. When was the curb and gutter built? Are there any clues to date them?
2. Who built the curb and gutter?
3. Which was built first, or were they built together?
4. Why do we have curbs and gutters?
5. Has the curb and gutter been rebuilt?
6. Visit City Hall to find out more about curbs and gutter construction.
7. Where does the money come from to build both the curb and gutters?
8. Who clean and repairs curbs and gutters?
9. Visit the maintenance department and tour the city curb and gutter system.
10. Study a map of the city's gutter system.

Science

1. What materials are used to make the gutters and curbs? Are they the same material?
2. What is the source of these materials?
3. What signs of deterioration are observed?
4. What are the causes of deterioration?
5. Are there any signs of the curb rising at some points? What would cause this to happen?
6. Take temperature reading on the surface of the curb and then of the gutter. Is there a difference ?
7. If so, why?
8. Take temperature in the direct sunlight, then in the shade, on adjacent soil, on grass surface and compare readings.
9. Is there any signs of expansion or contraction? Why?
10. Is the surface of the curb and gutter abrasive or smooth? Compare the two and tell why they are as such?
11. Is there evidence of plant life on the curb or gutter?
12. Do nearby trees and their roots effect the condition of the curb and gutter?
13. Is there any evidence that a curb or gutter provides a cover for burrowing animals?
14. Is there evidence of insect life on the curb or gutter?
15. Drop sugar or something sweet on the curb or gutter and and observe whether or not animals visit either place.

Art

1. Examine the shape and texture of the curb and gutter, compare the two.
2. Take a texture rubbing of both the curb and gutter.
3. Use aluminum foil as another means of getting the texture and pattern of a curb and gutter.
4. Using varied colors make an abstract picture using the texture rubbing method.
5. Have the children follow the lines they see in the construction of the curb and gutter.
6. Using concrete have the children make a model of a curb and gutter.
7. Paint the model that the children have made.
8. Make a pattern of design using the curb sections. Use print paper, crayons, paint and inks.
9. Observe the shapes fallen leaves make in a gutter.
10. Using a still camera take pictures of what you see at a curb. Use a movie camera to do the same.

Music

1. Take tape recording of what you hear at a curb side then slow it down to see if you can follow a melody.
2. Take a recording of different car horns compare the differences in sound.
3. Sit and listen to the feet of people passing by, see if you can construct a melody pattern of the tap, tap, tap. Do you hear a beat maybe 4/4 or 2/4 time.
4. See if you can compose words of a song about things you see and hear at a curbside. Then set your words to music.

FENCES

BY:
Donald McCormick

Children need to develop proficiency in using the fundamental tools of learning, in the classroom and in the out-of-doors. Following is a list of activities that will help to develop the tools of reading, writing, listening, observation and computation.

Surrounding our school playground is a chain link fence. Using this fence the following activities could be done:

1. Estimating:
   - Length of fence
   - Height of fence
   - Area Surrounded
2. Measuring:
   - Length of fence
   - Height of fence
   - Area Surrounded
3. Figure the cost to the school to put up the fence.
4. Making clue charts to identify plant life found along the found along the fence.
5. Collecting and mounting seeds and insects.
6. Using microscope and hand lens for closer scrutiny
7. Building a terrarium.
8. Compare soil under fence with the soil in the middle of the playground.
9. Sketch the different plant life around the fence.
10. Listening to natural sounds.
11. Making notes and writing reports on observations.
12. Making oral reports on observations.
13. Have a class discussion on fences and how they are used.
14. Do some reading on the different types of fences.
15. Draw pictures of different kinds of fences.
16. Drawing a map of the playground.
17. Make photographs of the different fences in your area.
18. Painting, photographing, or drawing the same scene of the fence surrounding the playground in the different seasons or weather conditions.
19. Check the length of the fence's shadow at a certain time of day in June and compare it with a day in January.
20. Check snow depth around fence and convert it to inches of rainfall.
21. Find out why the snow always drifts on the lee side of the fence.
22. Dig down in the snow and see if anything is living there.
23. Demonstrate how fences serve people.
24. Check the amount and kinds of litter caught in fences.
25. Write reports on findings and observations for local newspaper.

Through these and other similar experiences the student has an opportunity to achieve a more full realization of his individual capacities, improve his ability to work successfully with others and increase his economic efficiency through a medium that will be much more effective than the usual classroom situation.

BIBLIOGRAPHY

Carlson, Reynold E., Donaldson, George W., Masters, Hugh B., and Smith, Julian W., Outdoor Education Prentice-Hall, Inc..

Hammerman, Donald R., and Hammerman, William M., Teaching in the Outdoors. Burgess Publishing Company, 1973

UTILIZATION OF HIGHWAYS AND TRAFFIC IN EDUCATION

BY:
Andrew Dixon
Barbara Gandron
Marvin Reinstein

Due to the limited outdoor facilities provided on many school grounds, we have compiled a list of suggested topics related primarily to that of traffic and highways.

The subject of our topic is something which is available to all teachers.

We have offered suggestions in hopes of aiding a teacher in utalizing the out of doors for learning.

Lists have been compiled on the basis of alphabeticaly categorizing eight discipline areas, although many activities may be interchanged under the topics.

The following discipline areas will be covered:

Art
Language Arts
Mathematics
Music and Drama
Physical Education and Health
Science
Sensory Awareness
Social Studies

ART

1. Draw, sculpture, paint, what you think this area would look like if there was not a road here.
2. Look at different colored parked cars through a prism.
3. Make cars and roads out of different materials.
4. Photography.
5. Tape sounds and paint in accord to the rhythm.
6. Look in one direction, how many colors do you see, how many different shades of a color do you see?
7. Do paper and pencil rubbings on man made surfaces.
8. After observing traffic have students draw what they saw from a minds eye view.
9. Compare cars as to color, size, and design.
10. What is the most number of different colors you have seen on one car?
11. Due rubbings of the road.
12. Study facial expressions of drivers.
13. Decoupage pictures.
14. Collect stones or chunks of the pavement to make paper weights.

15. Paint the curb with water colors.
16. Do crayon rubbings.
17. Through nature a child can see distance and realize it is only an illusion on his paper.
18. Make three-dimensional cars or roads.

LANGUAGE ARTS AND READING

1. Have an oral discussion of what this area would look like if there was no road or traffic here.
2. Use senses of touch, smell, sight, hearing, and write a descriptive paragraph.
3. Write an autobiography of a road, or car.
4. Listen very carefully, find sounds that resemble our spoken language.
5. Observe traffic and keep a diary.
6. Discuss and write about relationships of road to the city. (transportation, lodging, etc.)
7. Write about the destructive and constructive effects of highways and automobiles.
8. Talk to the rhythm of sounds you have taped.
9. How has man damaged natural vegetation in your area?
10. How would you improve the road by your school?
11. Using sound, recognize cars with mechanical difficulties.
12. Discuss legends of the area.
13. Write stories about the area.
14. Make interesting themes through observation.
15. Find objects that are similar, examing them, and write about their differences.
16. Write poetry from observations made.
17. Keep a log of traffic or pedestrian accidents.
18. Read stories about roads and cars.
19. Make up a story about a trip you took on a road where there were no laws or regulations.
20. While observing traffic flow, make a list of the different things you see. Use these words as individual spelling lists.
21. What sounds do you hear? Try to put letters together representing these sounds.
22. Make up riddles about your observations.
23. Using things you have observed, give several clues and play a "What am I Game".
24. Have a spelling-bee.
25. Write letters or postcards to friends, telling them about the road by your school.
26. Write a letter to a construction worker inviting him to come in and talk to you about his job.
27. Discuss observations.
28. Make a class newspaper including write ups of outdoor experiences.
29. Interview people on road maintenance.
30. Look for skid marks or broken glass, make deductions and draw possible conclusions.
31. Pretend you are a Martian landing on our school, describe what you see without using the names of objects.

MATHEMATICS

1. Use shadows in determining heights of cars.
2. Estimate the number of seconds it takes for a car to go between two given points.
3. Time car speeds.
4. Determine the average car speed.
5. Measure distances of parked cars using the "Pace-Angle Method".
6. Use cars in counting and tallying.
7. Find the percentage of two door cars on the road, four door cars.
8. Using a map of the area calculate the distance you are from the points of interest.
9. Classify cars using many different ways.
10. Calculate width of the street.
11. Use automobile to do problems of speed and acceleration.
12. Count a number of cars and note the number with excessive exhaust fumes. Graph the relationships.
13. Estimate length of cars.
14. Calculate how many cars go by in a given time. Estimate amount of traffic that passes in an hour.
15. Log different styles of types of cars.
16. Estimate the amount of space needed to park a car.
17. Discuss why roads vary in size.
18. Discuss the different types of mathematics used in designing a road.
19. Study accident statistics.
20. Calculate their distance.
21. Measure tread wear on tires.
22. Measure wind speed.
23. Calculate the percentage of cars with out of state license plates.
24. Mathematical ingenuity involved in car building.
25. Study the effect state and local tax has on cost of an automobile.
26. Determine cost of constructing one foot of highway.
27. Calculate volume and weight of a section of road.
28. Discover how snowtires work.
29. Determine how car speed effects traction.
30. Determine the best speed to travel in order to conserve fuel.
31. Estimate height of signs.
32. Use license plates for basic recongnition of numbers.
33. Calculate the percentage of children in your class that cross or travel on a particular road each day.
34. Calculate the percentage of cars from two different states and graph the results.

MUSIC AND DRAMA

1. Creative movement.
2. Pretend you are an Indian, 97 years old who has never seen cars or roads before, act out how you would feel.
3. Present a play depicting life in the area before the roads were built.
4. Compose songs about traffic and roads.
5. Imitate sounds.
6. Action singing using motions to describe words being sung.
7. Record sounds, march, clap, skip, jump, dance to them.
8. Take slides of traffic and put them to music.
9. Relate previously composed music to natural sounds you taped.
10. Dramatize a bus ride.
11. Listen to sounds, put them to music.
12. Dance to sounds.
13. Make up songs about the area.
14. Use figures of speech to give a new outlook on sounds. a. allegories b. analogies c. metaphors d. similies
15. Pretend you can't talk, act out what you see.
16. Select a piece of music, play it out of doors, observe whether traffic appears to flow in accord to it.
17. Clap in accord to the flow of traffic.
18. Dramatize the starting of a car and how it operates at varying speeds.
19. Discuss advantages of radios in cars.
20. Pretend you are D.J. in a radio station.

PHYSICAL EDUCATION AND HEALTH

1. Imitate traffic patterns, fast, slow, close, apart, stop, go, yield.
2. Compare speed of car to throw of ball.
3. Compare how many times you can jump rope as a car moves from one area to another.
4. Do exercise number three above, then compare pulse rates.
5. Jump rope to sounds you hear.
6. Observe sanitation procedures on the road.
7. Discuss safety in a car, on the road crossings.
8. Discuss safety measures built in cars.
9. Study city laws on roads.
10. Pedestrian rights and safety.
11. Study large and small muscle activity used in driving a car.

SCIENCE

1. Have a scavenger hunt on sides of road.
2. Examine weather on roads and automobiles, observe effects weather has on them.
3. Observe the type of litter found on roads.
4. Observe road maintenance at work.
5. Observe and test air pollution.
6. Survey types of birds in area by feathers on ground of birds flying.
7. Shadows and how they change.
8. Examine sides of road with magnifying glass.
9. Photography.
10. Bring a construction worker into the class.
11. Study effects of roads on roadside environment, natural and man made.
12. Measure the amount of moisture on parked cars or road.
13. Look for evidence of layering in rocks, particularly if road is cut through a hill.
14. Compare temperature of pavement to that of the air.
15. Make a photographic record of the effects seasonal changes have on roads.
16. Identify the major local pollutants.
17. Observe the movement of rocks and soil on the road before and after a rain storm.
18. Estimate the number of automobiles on the road by your school, and the amount of pollutants added to the air.
19. Investigate ways to cut down on pollution.
20. Discuss the effect air has on moving cars.
21. Study methods of snow and ice removal.
22. Touch different colored parks cars, compare temperatures.
23. Compare the length of shadows cast by cars at different times of the day.
24. Study patterns in traffic.
25. Study highway structure design.
26. Study use of natural resources used in a car's construction.
27. Observe the physical deterioration of automobiles and roads.
28. Observe how weather affects highways.
29. Study drainage patterns.
30. Observe what is alive, what is dead.
31. Do coefficient of friction.
32. Study how the environment determines the community.
33. Observe how the environment brings about changes in plant, animal, and insect life.
34. Observe road side kills.
35. Test rain water for pollution.
36. Study snowflakes.
37. Put vas line on slides and place them varying distances from road, observe under a microscope.

38. Measure the amount of rainfall on a road, graph it.
39. Investigate where the water goes which falls on a road.
40. Research why roads are different colors.
41. Discover what a road is made up of.
42. Investigate the affects salt has on a road.
43. Discover what is under a road.
44. Test snow for pollution.
45. Investigate the physical make up of a road, and what happens beyond it.
46. Observe broken glass on roads.
47. Determine how roads can be improved.
48. Visit a road cut, compare it to how your road was built.
49. Measure temperature under the road surface, 12" above road, 24" above road, 36" above road. Compare, and graph, during different seasons.
50. Heat a broken away section of pavement.
51. Study friction, make a chart.
52. Study sound waves.
53. Look for evidence of plant and animal life pressed into road surfaces.
54. Find out how a traffic light works.
55. Determine why automobiles have round tires.
56. Investigate the effect studed snow tires have on ice and snow.
57. Discuss the advantages and disadvantages of having studed snow tires on cars all year round.
58. Investigate how early cars ran.
59. Investigate how different mechanisms of a car work.
60. What purpose is a radio antena, and how does it work.
61. Form a science club.
62. Study sound frequencies.
63. Observe and measure reflection.
64. Investigate glare, and what causes it.

SENSORY AWARENESS

1. Compare automobiles by shape, color, age, and use.
2. Play the "Web of Life Game", showing how various types of traffic affect man.
3. Pretend you are a car, what would you feel like, look like, smell like, sound like, taste like.
4. Describe how many things you can see which are red.
5. Close your eyes, listen to sounds, describe these sounds.
6. Describe how you would feel if you were a road.
7. Smell, describe what makes the different smells.
8. Compare hubcaps.
9. Texture of surfaces.
10. Temperature changes in traffic situations.
11. Observe symbolic relationships.
12. Listen to traffic with one car towards traffic and the other away.
13. Study traffic patterns in rain and snow.

14. Rebuild old cars using imagination.
15. Imagine what area would look like if road was not here.
16. Feel road.
17. Listening to traffic, what moods do you feel from passing vehicles.
18. Compare facial expressions of people passing.
19. Touch cars and road using different parts of your body.
20. Hear sounds on a continum.
21. Cup hands behind ears and turn in circle.
22. Compare density of different parts of a car.
23. Describe somthing that smelled bad.
24. Observe an automobile from an ant's point of view.
25. Pretend that you have X-ray vision.
26. Note changes in traffic patterns during different times of the year.
27. Compare the road by your house to the road near your school.

SOCIAL STUDIES

1. Make a road map representing the road by your school.
2. Compare other road maps to a map you have made.
3. Study street drainage.
4. Studying cars and roads, discuss who, what, when, where, why, built.
5. What changes or up dating has been made to the present road.
6. Compare different types of roads in regards to the purposes they serve.
7. Trace historic development along roads.
8. Develop concept of mapping, through personal experience.
9. Compare past and present means of transportation.
10. Present a play.
11. Locate a road in relationship to other parts of the city.
12. Study rock layers.
13. Determine how roads have changed the natural habitat of the area.
14. Study zoning regulations.
15. Have an "old timer" from the area come in and talk.
16. Discuss how roads have effected animals.
17. Study road shape.
18. Observing out of state license plates, determine how you would travel to that state.
19. Teach direction skills.
20. Find out about traffic regulations.
21. Classify and identify.
22. Make a map to scale.
23. Investigate the importance of roads.
24. Trace a child' route to school.
25. Communities change because envionments change.
26. Group living requires cooperation within and between groups.
27. Compare traffic signs.
28. Observe problems created by traffic.
29. Research where cars are made and how they are transported to your area.
30. Trace people involved form construction of car to final sale.

31. Research how road speeds are determined.
32. Draw a map of the route you take to school.
33. Investigate the effect studed tires have on clear pavement.
34. Research the history of cars.
35. Study early inventors.
36. Bring a community servant in to your class.
37. Investigate where money comes from to pay for building a road.
38 Investigate who determines where a road should be built.

In conclusion it has been our desire to make only suggestions to the classroom teacher of some of the options available. It is hoped that the individual teacher will be able to utalize and modify the suggested activities to their own classroom facilities and needs.

PARKING LOTS - A LOCATION FOR MOVING EDUCATIONAL ACTIVITIES

By:
Warren Grasberger

Seemingly barren-often overlooked-the school parking lot (or any parking lot for that matter) can provide a valuable resource for the enrichment of a school's curriculum.

The following is an outline representing sparks of ideas. It is left to the reader to add the fuel and fan them into a blaze of activity.

Parking Lots-Lined and unlined

I. Math

A. Measurement-find area, primeter, volume (using curb)
B. Capacity-count number of parking spaces on a lined lot-caculate average size of parking space on unlined lot.
C. Usage-graph change in number of cars parked in lot over given period of time.
D. Weight-caculate average weight of cars in lot-find total weight on lot at given time.
E. Scale drawing-diagrams and maps; large impressive and enduring
F. Geometric shapes-connecting parking lines with string, chalkines etc.
G. Compass pictures-follow a set of compass directions, leaving a chalk line to form a picture.

II. Science

A. Heat-investigate properties of absorbtion and reflectivity of parking lot surface and of autos in lot. Note texture and color of objects measured.
B. Investigate time of evaporation of water on lot on different days.
C. Life-plant and animal graph location, count, identify, classify.
D. Weather Station
E. Investigate chemical composition of lot surface
F. Microsopic life in rain puddles

III. Social Studies

A. Plot on map geographical origin of cars by licence plate
B. Identify occupations and industries responsible for construction and Maintainance of lot
C. Graph number of people in each car arriving-study implications in connection with automobile polution
D. Reseach origional use of land before it became a parking lot

IV. Language Arts

A. Role-play cars coming and going and the lot itself. Tape and transcribe
B. Interview those coming and going-produce a parking lot newspaper
C. Write poetry and stories
D. Dramatic presentations-theater in the round
E. Write creative discriptions
F. Read and reseach how asphalt is made

V. Art

A. Sketch, draw and paint
B. Chalk shadows of people and objects
C. Photographic essay
D. Collage of litter found in lot (present to teachers)
E. Ink print of tire tracks on large mural paper
F. Texture prints and rubbings

VI. Music

A. What sounds are heard in lot? Natural and Man-made
B. Parts of cars used as musical instruments
C. Form a steel band by pounding on various cars in the administrators parking lot
D. Record sounds and include them in a music piece

VII. Physical Education

A. Invent games and lay out playing area on parking lot
B. Bicycle safty course
C. Reseach what sports use a similar surface as the lot
D. Produce a creative (parking lot) dance

VIII. Awareness-Observation etc.

A. Feel and touch
B. Smell and taste
C. Notice patterns; oil stains, tire tracks, lines, cracks..
D. Quiet and alone (with pad and pencil or camera or tape) for morning in the lot
E. Beautification Project flowers, shrubs etc.

IDEAS FOR OUTDOOR EDUCATION BY USING THE PLAINTINGS NEAR THE SCHOOL BUILDING

BY:
Ruth Murphy
Bill Bradl

In this paper an attempt will be made to illustrate that outdoor education can be taught on a small area that has only a few shrubs, trees, flowers and the bare ground and grass that surrounds them. This small insect infested world is literally a garden of paradise in which to teach many concepts of nature and create an interest in other disciplines.

Both of our schools are located in a rural area with the forest coming down to the playground behind the school. But in keeping with our purpose we will use just the ideas that could be implemented successfully in either the front or side of our school buildings.

Both our school sites have about the same plantings except for the hardy little pansies that survived last winter's icy blasts. Both sites have white pine, some large trees and a half a dozen saplings.

The pine saplings are located between the windows of each room with two cedars spaced evenly between them with rhodoendron in front and between the evergreens. Further out away from the front of the building are maple saplings planted two years ago.

Along the driveways at both ends of the school are large white pines, dogwoods and maple trees.

Art

1. Make rugs with leaves, bark, bricks or whatever school is constructed with, sidewalks, etc.
2. Compare color of leaves.
3. Paint or crayon picture of what the children see.
4. Draw map of school grounds.
5. Make prints with leaves, plants, flowers, and bark.
6. Make sand prints in just the sand outside or with plaster of paris.
7. Draw cloud forsations - shapes
8. Draw birds seen by the children
9. Pebbles mosaics with cardboard or wooden backing.
10. Snow sculpturing in winter.
11. Drawing in the snow with sticks or just stamping out designs.
12. Spider-web prints by spraying the web with black or white spray paint and using the contrasting color to back it.
13. Wax leaves, wax paper above leaf and press or dip leaf in melted paraffin.
14. Make print of leaves by placing leaf on colored paper and putting direct sunlight for a day or two
15. Spatter paint around leaf on paper, a very good outside activity.

Math (continued)

18. Make a tree calendar to include:
    a. Unfolding of first leaf
    b. Flowers in bloom
    c. Fruits ripen
    d. Beginning of fall coloration
    e. All leaves
19. If there is a tree stump in the area:
    a. Determine the circumference
    b. Count the growth rings to determine age of tree
    c. How old was the student when the tree was cut down or how many years before the student was born was the tree cut
    d. Determine the height of stump

Language Arts

1. Life of a tree might be written and dramatized.
2. How it feels to be an ant.
3. Write records of class activities
4. Use puppets to tell stories about nature.
5. Make up poems, songs, stories, and plays about nature.
6. Listen for sounds of nature and keep records.
7. Make up stories using sounds in place of words. (animal sound, Wind, etc.)
8. Keep records of new words.
9. Help teach spelling words from nature experiences.
10. Collect descriptive words, for example, slender moist, rustling rough, etc.
11. Play animal, vegetable and mineral
12. Have twenty questions using nature objects.
13. Using the five senses have the children take paper and pencil and see how many things they can identify by using just one or a combination of senses. Be sure there aren't any poisonous plants in the area.
14. Acting out plays in or about nature. Prepare radio or television programs.
15. Reading and following directions for a nature trail, even in a small area this can be done.
16. Preparing reports for their classmates about things they have learned from nature.
17. Casset tape tour of the school grounds describing the various plantings.
18. Treasure hunt - pine cones, needles, flowers, seeds, grass, etc.
19. Establish nature trail with students at each post to describe various plantings.
20. Students write letters to the building architect in order to determine why certain shrubs and trees were placed in a specific local.
21. Make vocabulary cards to match the picture of a certain tree or shrub found around the school.
22. Students make a terrarium listing the steps necessary and distribute to lower grades.

Art (continued)

16. Collect weeds, cattails, etc., and make a winter bouquet. These may be sprayed or dipped in paint if more color is desired. Fixative should be sprayed on those not painted.
17. Nut people may be constructed from shells.
18. Nature photography.
19. Place slow moving bugs on paper and trace the trail they make then color the design.
20. Students make a mud bead necklace.
21. Use seal press or contact paper and poster board to arrange dried flowers, leaves, seeds, etc.
22. Plastic resin may be used to make clear shapes to study seeds, flowers, etc.
23. Take pine cones apart, glue the small pieces together and make small figures and animals.
24. Make a wild flower bouquet using borax and corn meal.
25. Make plant dyes--use for tie dying, painting, etc.
26. Make place mats from vines long reeds.
27. Use leaves needles as paint brushes.
28. Make mushroom spore prints.
29. Shadow prints of leaves, needles, flowers on photographic paper.
30. Have students make a leaf collage.
31. Seed collage
32. Latex mushroom molds

Math

1. Count the trees
2. Count the pansies
3. Estimate the distance between the trees and pansies.
4. Measure the distance between the trees and pansies.
5. Count the different plants, grass and weeds in a given area
6. Estimate the width and length of the sidewalk
7. Area of the sidewalk
8. Estimate the height of the trees (saplings) then measure them.
9. Use different species of trees as sets to develop the sets to develop the set concept.
10. If your trees are big enough the children might measure their circumference and determine their diameter.
11. Gather pebbles and acorns to use as counters.
12. Make a graph showing the amount of rainfall or temperature changes.
13. Develop concepts of higher, lower, smaller, bigger utilizing trees, shrubbery or grasses.
14. Have students compare a pine cone and a stone roughly the same size. Then have them weight them. Record differences and similarities.
15. Students make a scale map of the school buildings to include locations of various plantings
16. Make a graph of the height of trees and shrubs
17. Students count the trees or shrubs--determine the most numerous, least numerous species.

Language Arts (continued)

23. Find a poem or story about a shrub located on school grounds and read or describe to class.
24. Write a play giving all plants voices.

Science

1. Take a coat hanger or hoop, put it down on the grass and see how many living things they can find or how many non-living things they can find.
2. Another time they could put the hanger in two different places. First an open spot then in a shady spot under the trees or shrubs.
3. Compare plant growth in sunshine and in shady areas.
4. Observe the shape of the trees and see if they are all the same.
5. Examine the leaves and notice similarities and see if they are all the same.
6. Examine the bark and see if they are different.
7. After noticing these differences and similarities then if the children wanted they might try to classify them by their common name.
8. Parts of plants might be brought into the room and observed under the microscope or hand lens.
9. They might have a nature scavenger hunt. This may have things that were planted for this hunt or things which are habitants of nature.
10. Listen and try to identify where sounds come from.
11. Observe their shadows at different times of day and year.
12. Note location of the sun at different times of the day.
13. Observe the change in the trees and bushes as the seasons change
14. Observe cloud formations and see if you can predict the next day's weather.
15. If trees and shrubs are big enough to shelter birds build bird houses or feeders.
16. Measure rain and snow fall.
17. If shrubs or plants need care have the children determine what is needed and have them care for the plant.
18. Identify birds in your area.
19. If bird houses are built children could find out what material the birds would need to build their nest and provide this material for them.
20. Bring in insects that they find on bushes and put them on a constrasting colored paper, and have the children observe them.
21. After their observations ask the children questions. Why can you see it better on the paper? Why is that insect the color it is? Where did it come from?
22. The children may want to see how many different insects they could collect from around the school.
23. They might then want to identify them.
24. If a cocoon is discovered it might be watched where it is or brought into the school and put in a terrarium.
25. If there are flowers or flowering bushes they might enjoy watching bees get nectar and pollenate the flowers.

Science (continued)

26. Study the food chain. Allow different children to be different things, such as, man, owl, grass, trees, fish, and man's animals, etc. Then take string and connect different things that depend on each other. In this way you will have the web of life as everything depends on something else.
27. Pull up some different weeds and point out root structure.
28. Compare run off on grass covered areas to that of bare space. Either outside or with slanting boxes and sprinkling can inside.
29. Compare leaf buds at different seasons of the year.
30. In spring note new growth on trees and bushes.
31. Plant tree or shrub in spring or on Labor Day
32. Have students determine what attracts certain insects to specific flowers-colors, scent, etc.
33. Plant survey of shaded and sunny areas.
34. Show relationship of insects to flowers, trees, shrubs, etc.
35. Mount and identify plants around school grounds.
36. Collect seeds from various shrubs and plants in classroom.
37. Have students classify shrubs.
38. Make a display of the various types of soil found around the school grounds.
39. Demonstrate how grasses impede erosion.
40. Show how insects, disease, wind, fire, man and animals affect plants.
41. How do plants compete with one another.
42. Study a rotten log -- plants living on it, type of tree, where is the stump, how does this log help other plants and what will this log eventually become.
43. Have students determine how plants affect the soil and water.
44. Make a vocabulary list of plant words and have students demonstrate at least five of these terms.
46. Make a list of the edible plants in the area.
47. List the poisonous plants in the area.
48. Micro-climates and the relationship of plants.

Music and Drama

1. Dramatize a seed falling from a tree or another nature happening.
2. Make musical instruments.
3. Indian dances with the children clapping their hands or stroking a rhythmic accompaniment. with the children singing or chanting to the accompaniment.
4. Finding materials to make musical instruments - grass, leaves, stones, stick and seeds.
5. Develop them into an orchestra.
6. Interpret sounds of nature.
7. Group singing in the out of doors
8. Imitating bird sounds or other nature sounds they hear.
9. Puppet shows with nature themes are enjoyed out of doors.
10. Students produce a play showing plant succession
11. Act out the sprouting of seeds.

Music and Drama (continued)

12. Students listen at various shrubs--compare similarities and differences in sounds. Determine if sounds can be equated with musical instruments.
13. Make wind chimes.
14. Dramatize a bird landing in trees or shrubs.
15. Determine if music has an effect upon plants.

Social Studies

1. Make a map of the area with ledgend
2. Find out where the plants, bushes and trees come from.
3. Using a compass in determining directions from the school to the nearest tree, etc., or to streets and areas about the town.
4. Study the soil around the school. What is it composed of? How thick is it. Was it always there or was it brought in after the school was built?
5. If a tree is cut down the rings could be counted and studied for age of the tree. What were some of the things that happened during the life of the tree, etc.
6. Why do we need trees? (food, shelter, etc.)
7. Economic value of trees and shrubs in this area around the school.
8. Aesthetic value of trees and shrubs around the school.
9. The economic importance of insects in the bushes and trees.
10. Different types of employment necessary for a seed to become a mature tree on the school grounds.
11. Make a bulletin board of our forests as used today.
12. Show students a log and ask students to list the ways this resource was used by early settlers.
13. Log How is this resource used today.
14. Compare the absorbtion qualities of a sponge to soil. (Are there soils around buildings, like a sponge?)
15. Compare the absorbtion qualities of a piece of wood to soil. (Are there soils around building, county, state with these qualities.)

BIBLIOGRAPHY

Billington, Elizabeth T., Understanding Ecology, Frederic Warne & Company Inc., New York City, New York

Brennan, Mathew J. Editor, People and Their Environment, Teachers Curriculum Guide to Conservation Education, J. G. Ferguson Publishing Co., Chicago, Illinois

Conservation Quickies, The Interstate Printers and Publishers Inc. Danville, Illinois.

Hammerman, Donald R. Hammerman William M., Teaching in the Outdoors, Burgess Publishing Company, Minneapolis, Minnesota

Hug, J. and Wilson P., Curriculum Enrichment Outdoors. Harper & Row Publishers, Evanston, Illinois

Smith, Julian W., Carlson, Reynold E., Masters, Hugh B., Donaldson George W., Outdoor Education Prentice-Hal Inc. Englewood Cliffs, New Jersey

Syrock, B. John, Science Activities for the Elementary Grades. Parker Publishing Company Inc, West Nyack, New York

OUTDOOR ACTIVITIES FOR AN URBAN POND

BY:
Bill Merrifield
Greta La Goy
Mary Adams

In doing this project, we realize that we have only scratched the surface of things that one could do with a pond. Most of these ideas we thought of ourselves as a result of stimulation from our course in outdoor education and from exchanging ideas freely among ourselves and building on them through this sharing. It is our hope that you will use these ideas as a start and that as you experience them with your classes, you will expand and inprove upon them and create new ideas that you may share with others too. Perhaps as you share your experiences and ideas with other teachers and students, you will find as we did that one idea leads to another and there is no limit to the extent that the outdoors can be used to enrich our curriculum in all areas.

Our setting is a pond in a city park. It's bottom is a combination of gravel and mud, with the deepest point being about 4 feet. It is fairly round and about 100 feet across. It will accommodate a small rowboat or canoe with a limited amount of space for moving but it is adequate for teaching basic skills of these craft. The pond has been there long enough to have some vegetation and small pond wildlife. It's course is an underground spring and there are no streams or ditches draining the pond. The pond is surrounded by grass and few trees at least 30 feet from the pond, some being more distant on the park grounds. There is 1 to 2 feet of gravel and mud between the water and grass on the pond's edge. Even if you don't have something similar to this in your city, some of these activities could be done with a park wading pool or even a puddle in a ditch or parking lot.

Math

1. Divide pond in halves and quarters by having children stand across from each other with string.
2. Decide on approximate shape of pond.
3. Throw two different sized rocks in pond - which makes a bigger spash- discuss why.
4. See what floats in water and discuss why (density).
5. Count lily pads, trees, rocks, cattails etc. that are around pond; also compare sizes.
6. Use water for a lesson on measuring.
7. Measure how far around across.

8. Compare different water levels before and after rain.
9. Compare size of shadows on pond at different times during the day.
10. Measure depth of water in pond.
11. Measure depth of snow on pond.
12. Construct a map to to scale.
13. Have a number of scavenger hunts.

Social Studies

1. Make simple map of pond.
2. Observe water pollution and discuss implications to animals in pond and to man.
3. Follow tracks over and around pond in snow.
4. Find pond on map or draw map with pond on it.
5. Discuss the types of areas ponds could be found in, what types of soils would hold water.
6. Discuss why people built homes near ponds, lakes, rivers, etc.
7. Try to trace history of pond - natural or man made.
8. Study land formation and drainage near pond.

Language Arts

1. Describe different things living in pond.
2. Make up a poem about the pond.
3. Make up a story about some animal that lives in the pond.
4. Read stories about pond life.
5. Stand in the pond in bare feet and describe how it feels.
6. Discuss how you could get across the pond.
7. Close eyes and put hand or foot in the water and describe how it feels.
8. Have an A,B,C, Scavenger Hunt.
9. Spell words about ponds.
10. Have child write down as many diffent sounds he hears in a listening minute.
11. Keep field notes on trip to pond.

Science

1. Discuss where water comes from - sources.
2. Study plant and animal life living in the pond.
3. Discuss water cycle.
4. Discuss our need for water and how it helps us to live.
5. Test water for pollution.
6. Discuss and study insects found around pond.
7. Use some device for spraying water over the pond to make a rainbow

8. Look at the pond at different times of day and discuss differences - ie. in sun and in shade.
9. Look at pond at different times of year- fall-winter (frozen).
10. Observe pond in different weather.
11. Study pond water under microscope or magnifying glass.
12. Collect tadpoles and study life cycle.
13. Make boats and sail them on pond.
14. Observe animal tracks in mud around pond - perhaps follow tracks to see where they go.
15. Measure the temperature of the water at different depths.
16. Measure the depth of the pond.
17. Make aquarium to study small fish or tadpoles.
18. Melt snow and ice.
19. Air pressure experiment - water in glass with paper over top turned upside down.
20. Take a jar and scoop up some of the pond bottom- observe how it settles in layers - why.
21. Examine pond bugs and small animals in jar.
22. Sink a straw into pond bottom and see what you can come up with.
23. Compare ponds with other bodies of water., (streams, rivers, lakes, oceans etc.)
24. Make a terrarium from pond.
25. Zonation of vegetation due to light factor in pond - pond ecology.
26. Explain importance of recycling by using life cycle as model.
27. Compare the physical structure of water plants to land plants.
28. Compare trees growing near pond to those growing on a hill.
29. How many different kinds of rocks can you find along the ponds edge.

Physical Education

1. Swim.
2. Skate.
3. Canoe or boat.
4. Make snow angels.
5. Hike around pond or over it after frozen
6. Broom hockey
7. Regular hockey.

Music

1. Put water in cups at different heights and bang with spoon for different pitches.

2. Put water in coke bottles at different heights for different pitch.
3. Listen to frogs singing, fish jumping, ripples on the water washing onto shore.
4. Blow bubbles through straws.
5. Listen to rhythm of hitting water with a stick.
6. Make whistles out of hollow reeds.
7. Songs and music about fish, frogs, ducks and things associated with water.
8. Listen to rain falling on pond.
9. Listen to ice cracking on a cold day.
10. Listen to footsteps in snow as you walk across pond.
11. Beat on ice with rock, stick and something metal.

Art

1. Put food coloring in water and see how it moves (may show if there's a current.)
2. Make mud sculptures.
3. Paint rocks found in pond.
4. Draw animals and/or flowers found at the pond.
5. Make animals by gluing rocks together.
6. Color of pond - why- reflection of things in it changes color or things in it - let children hold colored paper over water and see how it changes color also let them put water color in it (in a glass).
7. Driftwood for decorating.
8. Clay sculpture - draw pictures in mud or sand around pond.
9. Make ripples with hand, foot or stick.
10. Make designs in snow or ice on pond.
11. Weaving with reeds and cattails.
12. Use tempra paints or ink and do printing with pond vegetation or spatter painting through a screen.
13. Use clay as a pond model base and put vegetation from the pond around it as it was in the pond (Vegetation zones).
14. Sketch animal tracks found in the sand or snow at pond.
15. Make plaster casts of tracks near pond.

SCHOOL BUILDINGS

BY:
Joseph Raba Jr.

The ideas provided in this paper are only a beginning and their scope will increase as does your creativity.

The various areas will be covered. Within these areas will be topics and these topics will offer a few suggestions. While the school building is used these ideas will be applicable.

Math:

1. Estimating
   a. How many tiles in the hall?
   b. How high is the classroom?
   c. How heavy is that wall?
   d. How many books in this room?

2. Measuring
   a. Length and Width and Height of room.
   b. Volume of room.
   c. Actual length of class's feet.
   d. Pounds of human weight in room.

3. Tesselating
   a. Which shapes tesselate?
   b. Which are used in building?
   c. Why?

4. Averaging
   a. Number of absenses in room, school.
   b. Tallest class.
   c. Size of family (students/teachers)
   d. Windows open at 10 a.m.

5. Computation These skills are used in all areas.

6. Graphing
   a. Birthdays of grade level.
   b. Types of shoes.
   c. Books in desks.
   d. Animals in school.

7. Mapping
   a. Scale drawing of room with school.
   b. Construct compass course in room/ throughout school.
   c. Traffic map of hallway.

8. Censusing.
   a. Walkers/Bussers.
   b. Brothers/Sisters.
   c. Favorite colors/foods/tv shows.
   d. Plants in classroom.

Music:

1. Sounds in school
   a. What instruments come closest to duplicating them?
   b. Can they be written?
   c. Write the story.

2. Taperecorder
   a. Select pleasant/unpleasant sounds.
   b. Imitate animals

3. Instruments
   a. Construct instruments using materials in and of school (jars and water, sticks and bricks, pipes and books).

Social Studies:

1. History of area
   a. Life 500 years ago.
   b. Life 100 years ago.
   c. Life 10 years ago.
   d. Today.

2. Location
   a. Shopping areas.
   b. Vacation areas.
   c. Industrial areas.
   d. Agricultural areas.

3. Heritage
   a. Family trees of students and staff.
   b. Reason for living near by.
   c. Advantages-Disadvantages.

4. Population Growth
   a. Past
   b. Present
   c. Future
   d. Reasons for change and stability.

5. Rules and Regulations
   a. Community regulations.
   b. School regulations.
   c. Grade level.
   d. Classroom rules.

6. History of Building
   a. Age.
   b. Addition.
   c. Replacements, etc.

7. Opinion Polls
   a. Lunchroom menu.
   b. Type of homework.
   c. Amount of "free" time.

Art

1. Rubbings
2. Sketching
3. Photography without a camera
4. Collages.
5. Patterns
6. Printing
7. Graffiti board
8. Scale models
9. Impressions.

Science

1.	Weathering	a. Effects of buildings b. Growth of plants c. Replacement of materials
2.	Materials to Construct Building	a. Composition of materials b. Strength of materials c. Durability of materials d. Origin of materials e. Cost of materials
3.	Plants within and without	a. Origin of plants b. Native/Alien c. Care of
4.	Heating/Cooling Plant	a. Fuel used (amount, cost) b. Installation c. How does it work d. Repairs
5.	Electricity	a. How b. How much? c. From where
6.	Water	a. Supply b. Amount used (cost)

Reading and Language Arts

1. Construct a book
2. Diary/Log
3. Happenings
4. Word substitutes
5. Personal dictionaries
6. Drama
7. Slides
8. Film making

Sensory Awareness

Touch	a. Blindfold walk b. Articles in box c. Explorations d. Whats it table
Tasting	a. Common cafeteria foods b. Mystery powders
Feelings	a. Color filters (viewers) b. Poetry c. Music d. Body motion

Hearing	a. High/Low position b. Positions throughout room/school c. Cover one/both ears d. Cup one/both ears

SCHOOL GROUNDS

BY:
Russ Bordeau
Earl Langdon

Urban conditions range from a relatively small completely paved (Macadam and, or concrete) courtyard to at least a reasonably large grassy playing field. Further, these fields are frequently absolutely flat and devoid of an significantly large amount of shrubs or other plantings, including trees.

However:
For the purpose of this project we will assume access to an area of football/soccer field size - flat, reasonably grassy with at least a few trees and shrubs and those shrubs and trees which ornament the building sides and/or front.

Photography
a. weather changes
b. plants through the seasons
c. signs of erosion
d. textures
e. snowflakes
f. hail
g. architecture
h. develop and print

Art
Pastels/Oils
Charcoal/etc.
a. interpret shapes and textures
b. leaf profiles
c. sketch features of property

Other
a. wood carving (native wood)
b. pressed flowers
c. spatter prints
d. shadow prints
e. nature collages
f. stuffed animals
g. sketch trees in different seasons
h. rubbings
i. make natural dyes
j. paint smooth rocks (cartoon)

Language
1. a. Students translate written descriptions of preexisting literature
   b. Describe in 2nd language what they see/smell/touch/and, or taste
2. Poems of nature
a. interpretive dance of insects/birds or animals
b. animals encountered in and/or on grounds
c. rhythm - dance
d. shadow plays
e. puppets
f. one act dramatic presentations of animal/bird encounters (fantasy)
g. devise play about local historical people

Music
a. record bird and animal sounds
b. record and I.D. sounds of industry
c. choreograph music for above
d. I.D. basic rhythms
e. make musical instruments of native materials.

Reading - In any of the preceding of following programs - there is an ongoing need to read direction and/or construction, performance procedures and any pre-existing discussion of others who have done similar acts - this offers countless opportunities for reading improvement without "textbook learning".
a. read nature stories
b. make class charts of things seen

Social Studies
a. history of property
b. possibility of fossil "digs"(artificial/planted/real)
c. architecture and builds
d. construct full or partial scale models of primitive colonial, victorian, and/or modern dwellings and industrial facilities
e. study construct models of transportion
f. pioneer survival activities
g. maps and map making
h. study economics of maintainence of school
i. study Indian lore

Math
a. map property
b. plot location of facilities
c. plot locations of all plants and trees
d. If trees determine
   1. Board feel of lumber
   2. Economic value of wood resource
   3. Height of plants/trees by triangulation
e. use of compass

f. demostrate distance determination of unapproachable objects.
g. demostrate height determination of unapproachable objects.
h. demostrate geometric figures
i. measure slope
j. measure
    1. acre
    2. lot
    3. "furlong"
k. determine cost of growing a garden

Science

Biology
a. identify plants and trees
b. soil study
c. transects
d. life in a rain puddle
e. micro and macro environment
f. water analysis
g. grow a garden
h. plant adaptation studies
i. make a collection of:
    1. insects
    2. leaves
    3. other
j. photograph "wildlife"
k. make taxonomy keys
l. bird watching
m. animal track studies
n. build a terrarium
o. look for animal signs

Chemistry
a
b. construct analytical solutions
c. air and water analysis (pollution detection)

Physics
a. dynamics of environment
    1. full size machines
    2. launch rockets, design rockets
    3. design and fabricate micro/macro environment equipment and explain functions
    4. determine why wood is so strong

Earth Science
a. soil analysis
b. erosin study
c. weather studies
d. rock and mineral identification and study
e. air and water analysis
f. weathering - physical, biological, chemical
g. fossil hunts
h. micro environments

Physical Education

Included here are all of the normal physical education activities, such as: football, baseball, soccer, tennis, gymnastics and tumbling, etc.

a. snowshoeing
b. cross-country skiing
c. design a golf course on school grounds and play on it
d. ice skating
e. snowball throwing
g. make game equipment from natural materials
h. spear throwing
i. sprinting
j. jogging
k. three-legged race
l. spoon race

Outdoor Skills

a. firebuilding
b. axemanship
c. shelters
d. cooking
e. "survival" (in urban as well as wilderness)
f. knots and lashing

Sensory Awareness

a. involves taste, touch, smell, sight, temperature, etc.
b. relates to all previous areas
c. make special effort to involve the other sensory areas beyond sight
d. make sure that students realize that they should touch, taste, smell, as well as look -- encourage them to do so!

Sidewalks in Outdoor Education

By:
Thomas R. Wilbur

The starkness of a sidewalk would lead most people to feel that it provides a sterile educational environment. However, sidewalks can provide a myriad of on-site learning experiences, applicabe to all disciplines. As a matter of fact, many activities come to mind when considering questions which may arise, or may be diplomatically introduced, regarding the subject of sidewalks. It would be worth many teacher's time to consider the following suggestions, since getting the students out doors, in a new and different environment, could prove to be a stimulus tht would provide a year long source of classroom enthusiasm and discussion.

For this paper, the areas of science and mathematics will be integrated, as they probably should be in the school curriculum. There will also be questions relating to social studies, English, and art.

Science and Mathematics

1. Of what materials is the sidewalk made?
2. Are the materials local or out of state?
3. What are the weathering characteristics of the sidewalk?
4. How do sidewalks differ in make-up and weathering characteristics?
5. Is the weathering of the sidewalk uniform?
6. Is there a difference in the dimensions of the sidewalk under varying seasonal conditions, ie., sun, rain, snow, etc.
7. Are the sidewalks uniformly level?
8. Were they always this way? Why or why not?
9. Are the irregularities seasonally uniform?
10. Does the sidewald curve or slope?
11. If it curves or slopes, what is the radius of the curve, and/or the percentage of the slope?
12. What is the area of a section?
13. Is there evidence of the sidewalk becoming part of the soil around it?
14. If so, can you estimate the time it will take for the entire section of sidewalk to become part of the soil?
15. What is the difference between the natural divisions in the sidewalk? (fall, winter, spring, summer).
16. What is the volume of a section of sidewalk?
17. What is the cost of concrete per yard?
18. How much did the whole sidewalk cost.
19. What is the length of your pace?
20. Estimated by pacing, what is the length of the sidewalk?

21. How does your estimate compare with the actual measured length?
22. Sidewalks are poured. Why do they become hard?
23. How do sidewalk temperatures compare with the adjacent soil and grass temperatures, above, below, and at surface level?
24. Do weather conditions affect these relationships? For example: sun, rain, snow?
25. How does the melting of snow on sidewalks compare with run off on adjacent surfaces?
26. When there is run off, how does it compare with run off on adjacent surfaces, in relation to speed, rain splash height, and other conditions?
27. Are there cracks in the sidewal ? If so, why?
28. Do cracks provide microhabitats for plants and animals?
29. What ate the types and populations of plants and animals in the cracks?
30. Do they have an effect on the size of the cracks?
31. Is there evidence of succession taking place?
32. What advantage does the sidewalk present to certain animals?
33. What are some animals that benefit from these advantages?
34. Does the sidewalk effect the growth of adjacent trees, or vice versa?

Social Studies

1. Why was the sidewalk built?
2. What processes of government took place in order to enact its construction?
3. How was the location of the sidewalk determined?
4. Are there evidences that would help you date the sidewalk?
5. Is the sidewalk's present position still serving its planned purposes?
6. Has the sidewalk been extended, widened, and properly maintained?
7. What is the volume of traffic on the sidewalk?
8. Does the type of traffic vary from hour to hour?
9. What is the projected use of the sidewalk for a year's time?
10. How does the sidewalk fit into the future plans of the city?
11. Why are the people walking on this particular sidewalk?
12. What is the relationship of traffic on the sidewalk to varying seasonal and weather condition?
13. Are the people using the sidewalk pleased with the money spent on it, or are they resentful?
14. What are the socioeconomic characteristics of the people using the sidewalk, to the best of your knowledge?
15. Is there an economic effect on these people when the sidewalk develops cracks? If so, to what extent?

English

1. Nearly all of literature deals with some form of life. What type of story or poem might you write dealing with life in contact with the sidewalk? Write one.
2. Can you think of titles of literary works that have a theme dealing with sidewalks? If not, find some.
3. Make up a crossword puzzle using words that pertain to sidewalk.
4. Put your hands on the sidewalk with your eyes closed during sun and rain. How does it feel? Describe the feeling in an essay.
5. In the winter, sidewalks are often covered with snow, or bordered by high banks of snow. Describe in several paragraphs what your imagination suggests upon viewing this scene.
6. Write a story with this sidewalk as your central theme.
7. Compare your ideas about the sidewalk here with a sidewalk in the center of town.
8. With your eyes closed, listen to the footsteps on the sidewalk. Write a description of the person's looks and personality on the sound of the footsteps alone.
9. Observe the animal and plant life on the sidewalk for a time. Extend personality to the life, and write a story or poem concerning their activities.

Art

1. Make a collage of different patterns in the sidewalk.
2. Trace the patterns of cracks in the sidewalk.
3. Incorporate these patterns into an original painting.
4. Make charcoal rubbing of different types of sidewalk textures.
5. In the fall, draw a picture depicting what you think the sidewalk will look like in the winter.
6. Stand at the end of the sidewalk, and draw it and its adjacent surroundings in perspective to infinity.
7. Describe the color of the sidewalk. Using your art background, explain what color it should be in order to complement or contrast its surroundings.
8. Using the sidewalk as the major point of interest, construct a drawing, using realistic, surrealistic, abstract, or any other style you choose. You must explain the style you are using.

Health

1. Make cultures of the microorganisms found on the sidewalk.
2. Are they harmful to us?
3. What diseases may be picked up from a didewalk?
4. Observe the people on the sidewalk. What percentage exhibits good health habits? For example: posture, sidewalk sanitation, exercise, etc.
5. Observe differences in posture and gait of two classmates, one walking on the sidewalk, the other on rough terrain. Explain the differences.
6. Are there differences in accident rates due to weather conditions?
7. What steps might be taken to level off the accident rate?
8. From a safety standpoint, should a bicycle be ridden on the sidewalk or the road? Explain your view.

Bibliography

Community School Site: A Laboratory for Learning. Lincoln, Neb.: U.S.D.A., Soil Conservation Service, Midwest Regional Technical Service Center, N.D.

Henderson, Ernest L. The World Around Them. Whitesbog, New Jersey: Conservation and Environmental Studies Center, 1969

Rillo, Thomas J. Exploring a Sidewalk Wilderness. Glassboro State College, N.D.

Russell, Helen Ross. Ten Minute Field Trips. Chicago, Ill.; J. G. Ferguson Publishing Co. 1973.

THE USE OF THE STREAM IN OUTDOOR EDUCATION

By:
Lawrence E. Tourville
Kathleen Purdy

There is one great conceptual scheme which encompasses all of man's relationships with his environment - the interdependence of all living things with one another and their environment. Here we are discussing the use of only one portion of that environment--the stream. It must be remembered that in actuality, we can never limit ourselves to one aspect of this biosphere.

In education we must provide the children in our schools with an opportunity for experiences with their environment and all of life. It is an exciting and challenging way to educate our students in all curriculum areas. We must develop a culture in which man recognizes his interdependence and his responsibility to maintain his environment in a condition fit for living.

All facets of the school's curricula, after all, are directed toward man and his needs, although our interpretation of what these needs are may be asked. At this point in history these needs coupled with technology and runaway population make man the most important factor in the future of all life on this planet.

The relationship of man to resources and environment is essential. Therefore, let us take the child out of his classroom so that he can have the experiences of striving, seeking, and perhaps finding these interdependencies and also most happily-himself.

Science

Man is a land organism. Most of us are more knowledgeable of the land and its inhabitants than we are of the water and its inhabitants. Yet water and its environments occupy much more space on our planet. We must study and understand both areas since they are interdependent.

The conservationists outline three major concepts which are excellent for all curriculum areas.

1. Living things are interdependent with one another and with their environment.
2. Organisms (or populations of organisms) are the product of their heredity and environment.
3. Organisms and environment are in constant change.

As they note for example, the science concept "an organism is the product of its heredity and its environment" becomes "the family or the community is the product of its culture (heredity) and the rules under which it must operate (environment)" in the social studies.

Activities

1. Utilizing old and new maps, determine the extent and nature of geographical changes along the stream.
2. Make a photographic record of seasonal changes in the stream.
3. Study seasonal variations in the river's current.
4. Using a hand borer, note seasonal variations in sediment deposits as influenced by changing currents.
5. Make a study of any erosion problems along the stream.
6. Using a bacterial sampler, make surveys of various points along the course of the stream.
7. Using drift cards, trace the course taken by the discharge of the local sewage lines or factories.
8. Identify the major local pollutant.
9. Measure the carbondioxide and oxygen of the river over a 24 hour period: across seasons, a year. Use water kit and sampler.
10. Using a wet table, cold table aquaria, learn to culture local life forms under lab conditions.
11. Collect, identify, and preserve local algae using a collection and preservation kit.
12. Make a chromatographic study of algae pigments.
13. Study succession along the banks of the stream.
14. Visit the local state fish hatchery.
15. Test the stream of suspected areas of sewage pollution and report your findings to your local health board officer.
16. Compare the type of life found in a brook, river and stream.
17. Determine what effect the loss of water has upon different plants and animals.
18. Determine the effect of excess water upon plants and animals.
19. How do the aquatic animals obtain water?
20. How much water does the human body require to take care of daily water loss?
21. Collect samples of water from various streams. Allow the water to stand for 24 hours and compare the respective amounts of sediments. This will show that water is more or less constantly carrying soil particles.
22. Test to determine soil particle size. Fill a jar two-thirds full of water. Pour in soil until the jar is almost full. Let the jar stand until the soil settles. Place white paper behind the jar and mark off layers of the settled soil. Diagram this.
23. Give examples of unrestricted dumping of wastes into waters of your town, state and nation. What will happen to the plants and animals in these waters.

24. Determine methods in which to answer the question, "Do fish need plants in the water to live?"
25. What do the plants supply that fish need for life?
26. What do fish and other water animals supply to plants?
27. Set up experiments for sampling the animal population of the stream. Find out the following information for each animal. 1. Number of individuals--male and female. 2. Name of animal. 3. Feeding habits--food, how secured, time of day feeding is done. 4. Means of defense. 5. natural enemies. 6. are special management practices needed to maintain their number or keep them from increasing too rapidly? 7. How do they contribute to the balance of life in the community? 8. Relative number in area. 9. Which are the predators? 10. Which serves as prey?
28. Discuss local fishing laws.
29. Determine what preventative measures are being taken against pollution by your town and the industries around your town.
30. What is being done by the state to prevent water pollution?
31. What is being done by the nation to prevent water pollution?
32. What can you as an individual do to prevent pollution?
33. Determine ways in which aquatic insects may be classified.
34. Study the food chain in the stream.
35. Which mammals make use of this stream? What evidence of this can you find?
36. What evidence can you observe that the stream bed was not always at its present location?
37. Draw the silhouette of the fish found in your local stream.
38. How does the cleansing of a dam effect vegetation and fish?
39. Identify and preserve aquatic plants.
40. Measure energy of stream. Build a water wheel.
41. Make a power generator at a small waterfall.
42. Dam a small brook and then release the water to illustrate the erosive force of water.
43. Compare the nature of the streambeds of a brook and a mature river.

Mathematics

Mathematics is a subject in which many teachers never use the out of doors. If it is used the students can begin to answer for themselves the age old question, "what can I use this for?"

Activities

1. Estimate the width of the river by three different methods.
2. Determine the depth of the river at various points.
3. Map the profile of the bottom of a stream at several different crossings.
4. Determine the velocity of the current at various points and graph it. Repeat at various times of the year and compare graphs.

5. In what direction is the stream flowing?
6. Take the temperature of the stream at several points and depths and graph it. Compare your results with those obtained at other times of the year.
7. Measure the thickness of ice that forms. Use the proper safety precautions.
8. Compare the water levels at various seasons.
9. Visit the stream's source and compare its depth, width, temperature and velocity.
10. Discuss the angle of refraction and how this must be accommodated in spearing fish.
11. Is the water warmer or cooler than the air?
12. Measure the PH of the water. Correlate this with the study of logrithms.
13. Determine the amount of dissolved oxygen.
14. Obtain a topographic map of your area and determine the total length of the stream, its total change in slope, and the location of its source and outlet.
15. Determine the amount of pollutants in the stream.
16. Determine the amount of sediment in the water during the spring high water period and compare it with another season.

Art

Nature is an excellent area in which to provide children with experiences in art. Here they can easily see how varying light intensities change the aspect of a landscape. Their experiences can range from the viewing of the tiniest detail of one object through the entire panaroma within their view.

Activities

1. Observe the effect of light at various times of the day and during the different seasons upon the surface of a stream.
2. Observe the reflection of objects in water.
3. Film the stream or brook during the various seasons and choreograph it with a tape of music.
4. Study the techniques of different artists in their representation of water.
5. Paint or sketch the reflection seen in a stream.
6. Paint your emotions while sitting by a brook as opposed to sitting by a stream.
7. Study the different shapes of rocks and pebbles in the stream.
8. Collect driftwood along the shore.
9. Observe the shape of a bridge.
10. Try to sketch an old mill using its ruins and your imagination.
11. Use mud from the stream to paint.
12. Sketch the silhouettes of the clouds overhead.
13. Collect water plants to dry for floral arrangements.
14. Study the colors present in rocks, sand, animal life, etc.

15. what textures are present?
16. What colors are associated with which emotions?
17. Use water plants and rocks for rubbings.
18. Place water plants between sealed sheets of acetate for use as place mats.
19. Paint on rocks.
20. Weave with cattails.
21. Look for the patterns made by various trees upon the water surface.
22. Make paper weights from river smoothed stones.
23. Visit a stream during the four seasons and observe the differences in mood.

Music

The out of doors can provide the child with an understanding of how music has its origins in the natural sounds of our earth.

Activities

1. Listen to the sounds of a stream under various seasonal conditions.
2. Listen to the sounds of the birdlife, insects,etc., that accompany a stream.
3. Tape the sounds of a stream and compare it with the sounds of a brook.
4. Choose several pieces of music and see if the children can detect the sounds of water.
5. Fill cylinders with water columns of varying heights to obtain different notes.
6. Which emotions does the music of a mountain brook evoke?
7. Which emotions does the music of a meandering stream evoke?
8. Determine how various aquatic insects, frogs, toads, etc., produce their song.
9. Show the movie, "The River," a WPA production.

Home Economics

The Home Economics teacher can use a stream as a resource to illustrate its present and past uses as a source of food and building materials.

Activities

1. Catch the fish, crayfish or whatever is native to your area and use it to prepare a meal.
2. Teach the student how to cook in the out of doors, both in a camping situation and the family backyard style.
3. Study the methods used by early peoples to preserve a fish.
4. Determine which aquatic and shore dwelling plants are edible and how they are best cooked.

5. Study how a stream was used as a source of energy for grinding grains and sawing logs.
6. Go ice fishing and cook them in the out of doors.
7. Collect cattail pollen and prepare bread.
8. Cook the meat of a wild animal and discuss how it differs from the cooking of domesticated animals.
9. Collect various berries and make jellies and jams.
10. Teach the student how to preserve various foods by canning and freezing.
11. Collect various plants, stones and driftwood to decorate your tables in the school cafeteris.

Industrial Arts

Streams offer the Industrial Arts teacher an opportunity to give his students practical experience in water construction.

Activities

1. Build a simple bridge across a small steam if permission can be obtained.
2. Build a dam across a small steam if permission can be obtained.
3. Study the type of dam construction used by beavers.
4. Study the types of construction used in earlier times in building dams and bridges.
5. Build model boats and test them in a stream.
6. Build a raft.
7. Visit an old water powered sawmill.

Physical Education

Physical Education is unlike other subject areas taught in the outdoors. Physical Education is unique in that everything one does in the outdoors requires some form of physical activity. The degree of physical education that takes place depends on the subject being taught. The following is a list of physical activities that can be done in a stream setting.

Activities

1. Insect collecting along the bank of a shallow stream. The stream can be a fast flowing river to a slow running water in a drainage ditch.
2. Stream wading and seining for fish.
3. Boating and canoeing - from boating lessons to racing.
4. Swimming lessons to pleasure swimming
5. Fishing
6. Skin Diving
7. Dam Building
8. Streambed Cleaning
9. Raft building

10. Springboard Diving
11. Skating lessons to ice hockey
12. Broomball
13. Snow sledding

The above list is not divided into major curriculum areas. In a stream setting, one has to select activities and shape them to fit their needs.

Caution is advised in teaching physical education in the outdoors in a stream setting during the winter months. Be very cautious of the following conditions.

1. Thickness of ice
2. Wind chill factor
3. Temperature

Reading and Language Arts

In an outdoor setting, reading and language arts can be approached in two ways: (1) the study of literature, relating to the outdoors; (2) the outdoor environment as a stimulus for creative writing.

The mechanics of reading and language arts should be taught in the classroom. The outdoors should be a setting where the mechanics can be applied and made meaningful and useful.

The following is a list of outdoor activities that can be done in reading and language arts in a stream setting. The list is short but it will give you ideas that can be elaborated on.

1. Select books that deal with the areas being studied. Let students experience outdoor activity that relates directly to these areas. For example, if a student is reading about boats, the student could build a boat and float it in a stream. The level of reading and related stream activity depends a great deal on the age and reading level of students being taught.
2. Independent reading in a stream setting has a psychological affect on people. It usually relaxes them. The bank of a stream is a good place to take a class and just let them sit, relax and read. This can be done at any grade level.
3. Creative writing: Students can be encouraged to write about what they see, hear, smell, taste and feel in regards to a stream. This can be done in either a prose or poetry form.
4. Aquatic Insect and Fish Collecting: Students can collect stream insects or fish and do research on them. The research can be written up and presented either as a written or oral report.

SOCIAL STUDIES

Social Studies, the study of man and his relationship with his social and physical environment, is a broad and difficult topic to teach in the classroom. The difficulty is caused from the fact that the material lacks meaning in and by itself in a book. Outdoor education does a great deal to make social studies meaningful.

Bibliography

Amos, William H. The Life of the Pond. McGraw-Hill Co., New York 1967

Bardach, John, Downstream: A Natural History of the River. New York: Harper and Row, 1964.

Briggs, Peter. Water, the Vital Essence. Haper and Row, New York 1967

Buck, Margaret Waring. In Ponds and Streams. Abingdon Press New York, 1958

Buck, Margaret Waring. Pets from the Pond. Abington Press, New York 1958

Buehr, Walter. Water: Our Vital Need. W. W. Norton and Co., New York, 1967

Carlson, Carl. Water Fit to Use. John Day Co., New York 1966

Carona, Philip. Water. Follett Pub. Co., New York, 1967

Carr, Donald E. Death of Sweet Water. W. W. Norton and Co., New York 1966

Coker, Robert E. Streams, Lakes, Ponds. Chapel Hill: The University of North Carolina Press, 1954

Comstock, John Henry Insect Life, D. Appleton-Century Co., New York

Halacy, Daniel. The Water Crisis. E. P. Dutton and Co., New York 1966

Hofmann, Melita. A Trip to the Pond; An Adventure. Doubleday and Co., New York, 1966

Klots, Elsie B. The New Field Book of Freshwater Life. G. P. Putnam's New York 1966

Leopold, Luna. Water Time-Life Books, New York, 1966.

Morgan, Ann Haven. Field Book of Pond and Streams. G. P. Putman's Sons, New York, 1930

Petterson, Otis. Junior Science Book of Water. Garrard Prse Press, Champaign, Illinois, 1966

Reid, George K. Ecology of Inland Waters and Estuaries. Reinhold Publishing Corporation, New York 1961

Schmidt, Victor E., Rockcastle, Verne N. Teaching Science With Everyday Things. McGraw-Hill Co., New York, 1968.

A SINGLE TREE--AN OUTDOOR EDUCATION EXPERIENCE

By:
Rhonda Bolzile
Phil Durkin

A Single Tree

The following resource material is designed for use in an urban area where access to trees may be limited. Some of the activities included require a specific type of tree. However, a single tree on or near school property will suffice for the activities listed.

Language Arts:

1. Use the tree as background or part of a play.
2. Keep notes of studies concerning the tree.
3. Write poems, stories, diaries, logs or songs involving the tree.
4. Tell stories orally about a tree.
5. Make up riddles involving a tree.
6. Make up a crossword puzzle either in the shape of a tree or involving the parts of a tree for example.
7. Write the autobiography of the tree as though it was a thinking person.
8. Pretend the tree can see and/or hear and tell what it might see or hear.
9. Do a history of the area surrounding the tree and tell how the tree might remember buildings being constructed, people growing up, etc.
10. Do parts of speech concerned with trees such as adjectives--leafy, broad, slender verbs--whip, thrash, bend nouns--pulp, log, bark, twig.
11. Do a written "picture" of the tree in each season.
12. Make a collection of remedies and recipes that have been made using parts of your kind of tree.
13. Feel the tree and describe its texture.
14. Smell the leaves, bar or flowers and react orally.
15. Describe the shape of the tree.
16. Use the library to do research on trees.

Social Studies

1. Use your tree as an example. See how many industries or occupations depend on trees. Trace the origin of these occupations and discuss the reasons for their development.
2. Using figures on actual value of trees, explain how profit works and all of the middleman steps involved in getting the tree from nature to you.

3. Tap the tree and make syrup (if maple).
4. Observe the construction of any bird nests found in the tree and relate it to how people adapt material from nature.
5. Build a bird feeder and place it in or close to the tree. Observe changes in living patterns which will come about as a result.
6. Discuss the value of trees to the pioneers. Have things changed any today?

Math

1. Learn to use the Biltmore stick to determine heights of the tree.
2. Determine the age of the tree using an increment borer.
3. Gain an understanding of circumference and diameter and their relationship--make a diameter tape and measure the diameter of the tree.
4. Figure out the boardfeet in a tree.
5. Measure the distance from the tree to another given object in many different ways such as pacing.
6. Identify geometric shapes found in the tree.
7. Make tallies--ex.- number of leaves per branch.
8. Learn to estimate things such as height, distance.
9. Measure and record plant growth.
10. Figure out in dollars and cents what your tree would be worth.
11. Learn to toll approximate time with shadows cast by the tree.
12. Compare the shadow of the tree at different times of day by sketching or graphing.
13. Measure snow depth near and away from the tree and convert to average rainfall.
14. Work with liquid measures (gallon, quart, etc.) while collecting sap (if maple).

Science

1. Examine the leaf, its position on the branch, etc.
2. Become experienced at using just the eye for examining, then a hand lens and finally the microscope.
3. Perform chemical reactions--use solution on leaves to show the presence of glucose.
4. Examine insects or other animals to determine how they affect the tree or are affected by the tree.
5. Chose a particular insect found on the tree and study its life cycle to see if it relates in any way to the life cycle of the tree.
6. Check the tree for injury or decay and try to

determine the cause.

7. Examine the tree, especially the leaves, for the effects of pollution.
8. Make clue charts to identify insects or birds found in the tree.
9. Study the leaves by means of the blueprint, smoke-print, spatter print, crayon print or impression in clay.
10. Study the bark by means of rubbings or clay impressions in clay.
11. Study the process of photosynthesis as carried on by the tree.
12. Examine the soil near the tree and away from the tree to determine the amount of moisture and the temperature. Make charts and/or graphs at different distances, depths and times of day.
13. Check for effects of weathering and erosion--ex.--exposed roots.
14. Check driveways and sidewalks for evidence of roots pushing upward.
15. Determine wind directions by observing the tree bending.
16. Test the soil next to and around the tree to determine the percent of particular chemicals present.
17. Observe the tree during budding and leafing--disect some of the buds or seeds.
18. Observe and discuss how a tree is pollinated.
19. Observe and study the different methods of seed dispersal.
20. Study and discuss the conservation of trees as related to ecology.
21. Examine the flower or fruit of the tree.
22. Identify the tree by using a key.
23. Observe other plant life on th tree such as algae or lichens. Determine its dependency on the tree for food or support.
24. Observe the changing colors of the leaves and discuss the reasons for this change.

Art

1. Make a sculpture with sticks.
2. Drawings.
3. Sketching.
4. Paintings.
5. Rubbings.
6. Photographing.

} during each season

7. Use time lapse photography to show the buds opening into leaves.
8. Press the leaves.
9. Make leaf casts.'
10. Was the leaves.

11. Make a collage using materials from the tree.
12. Make dye from the tree bark.
13. Look for "lines" in the tree--tree trunk, veins in the leaves, etc.

Physical Education

1. Imitate insects or animals found near the tree.
2. Do creative movements as inspired by the tree.
3. Run relay races from a distance having the children go around the tree.
4. Play "Ring Around the Rosy" around the tree.
5. Use the tree as an obstacle in an obstacle course.

Music

1. Listen to the sounds make by the movement of the tree. Imitate or describe the sound.
2. Listen to the sounds make by the insects or birds in the tree and initate or describe them.
3. Compose a song about a tree.
4. Put a poem written about a tree to music.
5. March, dkip or dance around the tree to music or a drum beat.
6. Rub pieces of bark together.
7. Tap the tree trunk and the branches with a drum stick noting the different pitches found in different places. Determine the cause for this difference.

A VACANT LOT

BY:
Thomas C. Swan
Furman Pryme

The setting for the vacant lot is that of an urban area. The lot is small in size and is rectangular in shape. There are both natural and manmade objects visable. The lot has a visable slope. Some of the visable natural objects are trees, only several, grass, soil, water, stones, shrubs, weeds, and wood. There are also some other natural objects such as an earthworm, ants, butterfly, and a bird. Some of the visable manmade objects are paper, several cans of varying size and of varying metal. broken glass, plastic, copper wire, a brick, fence, and a swing.

The objectives of the project are to provide ideas that can be done within this small vacant lot if we were to deal with all the curriculum areas. One must consider different weather when planning these out-of-doors activities. The areas to be discussed are Physical Education, Social Studies, Science, Math, Reading and Language, Art, Music, Drama, Sensory Awareness, and Industrial Arts.

Physical Education

1. Have relay races to the different objects.
2. See how high each one in the class can go.
3. Throw horse shoes.
4. Throw the shotput.
5. Try the broad jump.
6. Have high jump competition.
7. Have hurtle races.
8. Have a tug of war contest.
9. Try a ring toss contest.
10. Throw darts.
11. If the field is large enough, one can exercise with soccer, football, softball, kickball, wiffleball, or baseball.
12. Snowshoe instruction would be good in the winter.
13. Callathenics for muscle coordination.
14. Ski instruction.
15. Have a polar bear picnic.
16. Make angels in the snow.
17. Have a snowball rolling contest.
18. Walk the balancing beam.

Social Studies

1. By observing the different natural and manmade objects, what are the different jobs involved?
2. How have these jobs changed with the times.

3. Have a discussion on the local history.
4. How has lumber helped the area?
5. How does paper relate to this area?
6. Is construction important?
7. Are there any new industries in the area?
8. How does this area with its industry compare to that of England?
9. The "Extravagant American".
10. Standards of living.
11. How can materials be utilized?
12. Is recycling important?
13. Use and waste of energy in the area.

Sensory Awareness

1. Notice the different temperatures from one place to another.
2. Observe within a small area the natural objects and the manmade objects.
3. Observe the moisture found in different areas at different times.
4. Observe the odors from one time to another in any specfic areas.
5. Touch the different objects and compare textures.
6. Chew a part of a leaf or grass, etc.

Science

1. Discuss the structure of the following objects:
   a. tree
   b. soils
   c. grass
   d. water
   e. stones
   f. shrubs
2. Discuss the structure of the following:
   a. an earthworm
   b. ants
   c. butterfly
   d. birds
3. Use a microscope on sections of plant life.
4. Use disection on various forms of life.
5. Watch cloud formations and discuss what they might mean
6. Discuss the full life cycle of the above mentioned natural objects
7. Construct a teeter totter for a fulcrum
8. Measure the speed of the wind
9. Study the weather through individual built instruments.
10. Chart the temperature changes at different heights and at different times of the day.
11. Study the chemical structure of the following:
    a. paper
    b. plastic
    c. metals
    d. glass
12. Study the chemical structure of the different natural objects:

13. Discuss the different balances between natural and man-made on terms of the environment.
14. How does erosion occur?
15. Ecology and the local community.
16. How does the water cycle work?

Mathematics

1. Figure the size of different objects within the area.
2. Figure the board feet in a tree.
3. Use different forms of measurement in mapping the area.
4. Discuss the different geometric shapes
5. Fractions
6. Estimate distance
7. Counting, adding, dividing, and multiplication
8. Balances
9. Use a compass to arrive at a pri-determined point.

Music and Drama

1. Listen to the following natural media:
   a. bird
   b. insects
   c. trees
   d. bushes
   e. weeds
2. Listen to the following manmade objects:
   a. traffic
   b. horns
   c. sirens
   d. voices
3. Make a song pretaining to any specific object on the lot or to the whole lot
4. By using bird and insect noises or manmade noises, tape an arrangement.

Reading and Language

1. Map reading
2. Chart the plot
3. Have a treasure hunt
4. Construct crossword puzzles
5. Outdoor poetry, essays, and short stories
   a. understanding
   b. reading
   c. writing
6. Listen to the surroundings
7. Spelling
8. Perceiving
9. Volcabulary
10. Have an oral dicussion on any of the different natural or manmade objects.
11. Observation of animal and insect communication.

Art

1. Sketch an object that is natural in creation in its entirity

a. tree
b. leaf
c. blade of grass
d. shrub
e. weeds
f. wood

2. When sketching, use pencil, charcoal, pen and ink
3. Sketch only parts of the object such as the veins of the leaf
4. Paint with oil, tempra , or water colors
5. Make a collage from the different natural objects found in the lot
6. Sketch, using the above different media or others the different animal structures
7. Construct sculptures through the different techniques of the different objects, either natural or manmade
8. Use crayon
9. Abstract into geometric forms the natural objects into a suitable arrangement
10. Arrange both natural and manmade objects together in a balance
11. Construct a relief map of the area
12. Study the construction of the different manmade objects
13. Make a mosaic out of the media found on the lot
14. Photograph the area and the objects in different ways

Industrial Arts

1. What are the properties of a tree?
2. Where are certain trees found and why?
3. Why are certain trees used for only specific uses?
4. What can be made from grass?
5. Soil - is it sand? What can be made from sand?
6. How is water used in industry?
7. How are stones used in industry?
8. Paper - How many processes has it been through, and discuss each step for that particular piece of paper
9. The different cans found - what are the metals and how are they made.
10. What are the different types of glass and what are they used for.
11. Plastic - what are the different uses, types, and how are they made.
12. Copper wire - where is the ore found and what are the uses of the wire?
13. Brick - where do the raw materials come from and how is it made.
14. How can we use these objects in the shop for projects?

CONCLUSION

In conclusion, I find that there is really no way possible

to isolate any specific subject area from another, especially in outdoor education. Everything is related and all are found in the setting with each other.

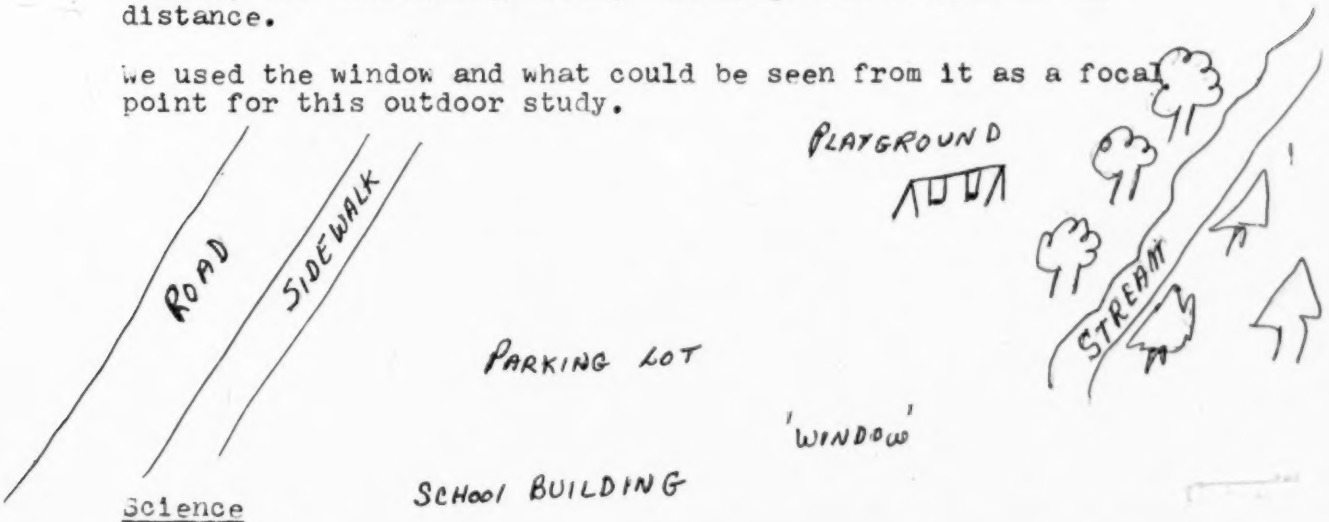
I have given only a very few instances for each of the curriculum areas and have listed only a few of t e objects which could be found in this lot. This could be expanded into book portions by actually visiting such a vacant lot and by exploring all the other possibilities found within it.

CLASSROOM WINDOW (IN AND OUT)

by:
Linda Donnelly
Barbara Fabro

From this classroom window, we can see a road and sidewalk, the school parking lot and playground, a small woods with a stream, and mountains, roads, buildings and forest in the distance.

We used the window and what could be seen from it as a focal point for this outdoor study.



Science

Taking compass bearings: sighting a landmark and determine magnetic bearing, the compass, cautions in using a compass.
List examples of rocks
Identify landmarks
Made for collection and recording soil information: measure and mark horizons, determine color, determine texture, determine structure, determine temperature
Collect information about soil profile: information above the soil, information about the soil.
Effects of sil depth
Effects of soil color
Effects of soil texture
Effects of soil structure
Study of living soil
Study of erosion
Study of animals
Invertebrates
Vertebrates
Study of evidence of animals
Study of habitats
Study of birds seen
what effect does man have
what effect do animals have
Study of weather: rules and tools, temperature, air pressure, rainfall, wind speed, wind direction, clouds, relative humidity, fuel moisture, predicting forest fire danger, weather flags, general weather forecast indicator charts, daily weather data and forecast chart.

Wind direction with balloons and bird feather vane
Exploring little climates (differences in temperature in different places on school grounds)
Compare size of soil particles
Compare color of soil
Smell soil
Compare color and moisture of soil from the surface to 2 feet deep measuring soil compaction in different places
Finding out how fast water soaks into the ground in different places (bottomless tin can sunk in ground)
Comparing erosion
Examining soil with a hand lens
Study of Stream Sample: collecting and recording water information, determine location of stream sample, determine water and air temperature, determine usable oxygen, determine effect of temperature on water life, measure portion of stream, determine how fast stream is flowing, determine average width of stream, determine average depth of stream,
Aquatic insects
Study of plants living in a plant community
Study of forest influences
Study of tree ages
Plant competition
Study of rotten log
Study of a single tree
Have children record observations
Observe guppies
Observe uncultured fish
Start a Garden Club
Flower arrangements
Plant notebook
Leaf notebook
Wild flowers notebook
Surprise garden
Strange garden mold
Grass seed garden
Window pane garden
Egg carton garden
Carrot top garden
Growing vines garden
Start a bird club
Trees and shrubs: sketching tree shapes - silhouettes, estimating tree height in relation to pupils, study bark patterns, textures, colors; finding root system, comparing dociduous and coniferous trees,
Seeing effect on soil erosion
Tracing rain that falls on the school building
Examining weathering bricks, wood, and paint on school buildings.
Illustrating air pollution by holding up a clean cloth in smoke
Observing where a puddle has dried up
Finding where ice or snow has melted.
Make soil by rubbing two rocks together

Arrange rocks according to color, texture, hardness, luster
Examine a rock with hand lens to see the size of the particles (texture)
Rubbing 2 rocks together to see which one makes a scratch in the other (hardness)
Observing if the surface of the rock reflects light (luster)
Finding rocks that break differently by comparing edges worn by water or cracked by weather
Compare man-made rock
Determine weights and size
Determine different kinds of fossils
Make impressions in clay
Netting and studying pond plants and animals
Determine average depth of pond
Make a map of the pond
Determine temperature of water
Use microscope and hand lens to discover microorganisms
Compare fruits, seeds, buds, leaf scars, leaves
Measure - distance around (circumference) and distance through the center (diameter) with a string tape
Compare trees and shrubs
Grass and other vegetation - finding effects of people, animals, sunlight, wind, water, etc. on plant growth; finding locations where plants grow (cracks in sidewalks, school buildings, tree stumps)
Tasting wild onion
Finding effects of plants on erosion and erosion on plants
Rub plant pigments on sand paper
Keep records of the heights of small plants with strips of colored paper by gluing the strips to a piece of cardboard to make growth graph.
Studying the roots of grass or other plants by carefully washing away the soil
Compare how seeds travel from place to place
Estimating length of shadow in relation to object
Comparing the shadows cast by the flag pole, posts, trees, persons, buildings
Compare shapes of shadows to the object casting the shadow
Observe how shadows fall according to the position of the sun
Sidewalks - examine what they are made from and how they are made; find plants and vegetation growing in cracks; finding wearing away by forces of weather and people; finding soil onto them and determine where it come from studying where the sidewalks have been place and where they are needed.

Observing birds, squirrels, insects
Finding animal homes (under logs, and rocks, tree barks, holes in trees, nests)

Establish bird feeding stations near a window
Finding tracks in the mud and taking plastor of paris costs of them
Keep records of when birds arrive
Study of Phoosynehesis
Study of Pollination
Study of Classification
Study of water in and out of window in winter: waterice-water
Put out iron to rust
Study of Evaporation
Look for purpose of all living things
Make food chains
Carbon cycle in ponds
Carbon cycle in forest
Measure moisture in air with photographic film
Measure wind velocity
Make aquarium of pond life
Build a grab bag terrarium in winter and see what grows
Examine cricket or grasshopper
Make a butterfly collection
Build and stock outdoor aquarium
Trap animals with camera
Attract and study hummingbird
Build a winter bird bath
Build a waterscop-large glass jar submerzed half way in water
Gather frog eggs and raise them to frogs
Raise turtle
Make bird feeder
Make bird nest collection
Make bird house
Make feather collections
Collect and mount insects
Raise caterpillar to butterfly
Raise crickets
Make an ant farm
Crush pebbles to find crystals inside
Make pebble and rock collection
Play "Nature Match"
Nature Scavenger Hunt
Dig up 6" x 12" x 4" deep soil, crumble and count insects in it (kinds and number)
Plant bulbs
Vegetable house plants
Test soil for acidity with litmus paper
"Plant" a lime been between blotting paper and inside of glass jar and watch it grow
Track animals in the snow

Poke constellation in oatmeal box top, put flashlight inside, and show on ceiling
Adopt a tree for a school year
Collect tree flowers
Stand under tree in rain
Plant trees, shrubs, flowers on school grounds
Tap maple trees
Determine ways seeds are dispersed
Map seeds on ground and compare to see which grow
Grass census
Look for mole tunnels in grass
Observe ant hill
After or during rain observe earthworm holes
Dig up and observe earthworm burrows
Observe fungus and lichen on rocks
Look for nature repairs
Observe life in a hole in a tree trunk
Observe a native plant garden
Gravity-jump, toss objects, snow on roofs
Find rust on fire escapes, fences
Listen to echo off school building
Measure time lapse
Put ear to ground and listen to child move around
Observe erosion during and after rain
After rain dig to see how deep water goes
Observe cut slope
Cut into hailstone to see layered structure
Compare new and old snow for obvious pollution

Social Studies

Study people tracks in the snow or mud
Read and make maps
Study rock formations in various areas
Study cut tree stumps
Estimate age of standing trees
Study the history of your locality
    first inhabitants
    earliest explorers
    where they came from
    why they moved
    what industries they had
    what education they had
    what was on the present school site
    what's there now that was there long ago
Examine a cemetery
Study transportation
Study any kind of cargo in passing trucks
Study fuel, rubber, metals, used in vehicles
Study traffic and community signs
Discuss any jobs suggested by people seen from the window
Discuss clothing and fabrics
Discuss nationalities
Compare your topography, climate, plants, and animals and soil to that of a distant area

Discuss rules and regulations and reasons for authority and government
Compare construction, architecture, building materials
Discuss magnetic north
Use a map scale and legend
Make a watershed map

Math

Estimate and calculate heighth of trees, buildings, flagpole
Measure distances, stride, slope
Measure the temperature of soil in different areas
Use natural counters
Measure sidewalks, count sidewalk squares
Measure buds as they grow
Use meter sick and level and sighting level
Look for geometric shapes in nature
Build a surdial to tell time
Measure wind speed and direction
Use a plane table
Use a transit
Estimate the number of trees, blades of grass, birds in a flock
Compare the efficiency of yardstick, tape measure, and pace
Determine the rate of flow of a stream
Determine air temperature by the chirps of a cricket
Determine the volume of soil washed from a gully
Determine the distance of a store with the aid of thunder and lightening
Find out the amount of water in a cubic foot of snow

Reading and Language Art

Keep logs of nature walks
Keep trip reports
Read camp stories and legends
Write letters to friends about nature trips
Write letters to landowners for permission to use their land
Label nature trails
Make up stories about nature experiences
Write poems, stories, descriptions, etc, about things observed
Play Spelling Race with nature words
Write stories about
- sounds
- design
- materials
- plant growth
- fire-fighting
- light, sun, moon, etc.
- smokestack
- litter
- property destruction
- colors
- round-robin stories of observations

Read weather proverbs

Art

Draw pictures on blacktop
Paint curbs
Make nature colleges
Make nature centerpieces
Trace insect paths
Make leaf rubbings or leaf prints
Make rubbings on the blacktop
Make pine needle designs
Weave with sticks and yarn or grass
Make clay sculptures
Sketch scenery
Make sand designs and casts
Make paper copies of birchbark canoes
Make rock sculptures
Spatter paint with leaves or stones
Make wooden boats
Collect cobwebs on construction paper
Make nut animals and people
Make seed mosaics and jewelry
Study and make snowflakes
Make leaf people
Make blueprints of leaves
Make dried flower arrangements
Make plaster casts of most anything
Look for geometric shapes in nature
Enlarge and sketch a small object from nature in detail
Finger paint nature scenes outdoors
Tie knots and lash or do macrame
Draw lines to show how various things in nature move
Draw a sound you hear
Make sandpaper drawings using natural colors from grass, flowers, etc.

Sensory Awareness and Drama

Go outside and give the children 10 minutes to write down everything they see, hear, feel, smell, etc.
Make and listen to a grass whistle
Tape record outdoor sounds
Use only one sense to discover everything you can about an area
Touch the window and sill for heat, dampness, smoothness, etc.
Act like the wind, clouds, birds, rain etc.
Relate feelings to nature (sad-gray day)
Listen to different soils, leaves when rubbed between fingers and held to ear
Squeezing samples of soil together to form ball
Play Kim's Game

Physical Education

Race maple seed "helicopters"

Race milkweed or dandelion seeds
Have relay races
Play softball or kickball or dodgeball
Play SPUD
Play Hopscotch
Play Hide and Seek
Jump rope or Chinese jump rope

Music

Tape nature sounds
Sing nature songs
Listen to "Peter and the Wolf"
Build and use rhythm instruments
Imitate nature sounds
Listen to records of sounds of water and compare stream outside
Imitate bird calls and tape them
Time cricket chirps and bird calls
Make grass and leaf and stick whistles
Compare sounds and rhythms of nature to those of modern music
Decide which animals are suggestive of various types of music (rock, classical, jazz, etc.)

SOURCES

Frankel, Lillian and Godrey. 101 Best Nature Games and Projects. Gramercy Publishing Company. New York. 1959

Mand, Charles L. Outdoor Education, J. Lowell Pratt and Company. New York. 1967

Milliken, Margaret, Austin F. Hamer and Ernest C. McDonald Field Study Manual For Outdoor Learning. Burgess Publishing Company, Minneapolis, Minn. 1968

Pettit, Ted S. A Guide To Nature Projects. W. W. Norton and Company. New York. 1966

Rogovin, Anne. Learning By Doing. Mafex Associates, Inc. Johnstown, Penna. 1971

Russell, Helen Ross. A Teachers Guide: Ten Minute Field Trips Using the School Grounds for Environmental Studies. J.G. Ferguson Publishing Company. 1973

Outdoor Education Experiences for Emotionally Handicapped Children and Youth.
The University of the State of New York.

THE USE OF A WINDOW BOX IN DEVELOPING CONCEPTS TOWARDS OUTDOOR EDUCATION

BY:
Rob Gerych

In the following paper I will express some of my ideas as to how a window box might be used to teach and develop concepts in different subject areas in a 4th grade situation.

Math

1. In building a window box, the use of materials such as a ruler, size of nails, amount of wood needed, all which show need for measurement skills.
2. In preparing proper soil using different measuring devices such as a gallon pail, to show how much soil was actually needed in making mixtures of soil. (Sand, peatmoss, garden soil)
3. Use of graphs and recordings to show time of germination and growth rate changes from day to day.

Also use comparisons of plants in other window boxes.

Reading

1. Research to find what plants might grow best in a window box.
2. Read stories to class about indoor plants (Their needs, size, history, etc.)
3. Encourage student reading in the area of gardening, expanding a window box to outdoor gardening.

English and Writing

1. After having built a window box, have the students write a report to tell what they have done.
2. Have students make up sentences telling about their window box projects and use these sentences for handwriting practice.
3. Write a paragraph to tell how our window box project might look a month from now.
4. Have students do research on a house plant or other indoor plant and present reports to class.

Social Studies

1. Form groups and have them plan what materials are needed to build their window box.
2. Selection within group members to acquire and bring to school the needed materials and equipment.
3. Discuss responsibilities in the care of their window box.
4. Hold brief meetings frequently to evaluate their project and present any needs or problems that might develop.

5. History of various plants to be grown.
6. Importance of the window box and victory gardens in times of national distress.
7. How window boxes may be important to future generations with population explosions.

Science

1. What conditions are necessary for a seed to germinate?
2. How do plants reproduce?
3. How does light and heat affect a plant?
4. What are the parts of a plant?
5. Do different soils affect a plant?
6. Does a plant have feelings?
7. How do you test soil for P.H.?
8. How does a plant grow?
9. What conditions might harm a plant?
10. Examine parts of a plant under a microscope.
11. Discuss a plants value and contributions.

Music

1. Play different music to the plants and see how they respond.
2. Try to make up music that you think would be favorable to the plants.
3. Make up a song about our window boxes.

Art

1. Construct models of a window box using construction paper clay, etc.
2. Paint and decorate the outside of the window boxes.
3. Make a bulletin board about their window boxes.